

What is Claimed is:

- [c1] A method of forming an extreme ultraviolet lithography (EUVL) mask structure, comprising:
- providing a first conductive layer between a buffer layer and an absorber layer such that the buffer layer is on a multilayer stack that is adapted to substantially reflect EUV radiation incident thereon, and wherein the absorber layer is adapted to absorb essentially all of EUV radiation incident thereon;
 - forming a mask pattern in the absorber layer accompanied by inadvertent formation of a defect in the absorber layer; and
 - repairing the defect.
- [c2] The method of claim 1, wherein repairing the defect includes directing a beam of charged particles into the absorber layer and toward the first conductive layer, and wherein the first conductive layer shields the buffer layer from electric charge accumulation.
- [c3] The method of claim 1, wherein repairing the defect includes directing a laser beam into the absorber layer.
- [c4] The method of claim 1, wherein the first conductive layer has a thickness between about 50 Å and about 100 Å.
- [c5] The method of claim 1, further comprising after repairing the defect extending the mask pattern into the first conductive layer and into the buffer layer in a substantially defect-free process that exposes a portion of the multilayer stack.
- [c6] The method of claim 5, wherein extending the mask pattern into the first conductive layer and into the buffer layer comprises:
- extending the mask pattern into the first conductive layer by an etch method that is selective with respect to the buffer layer; and
 - extending the mask pattern into the buffer layer.
- [c7] The method of claim 1, further comprising providing a second conductive layer on the absorber layer, wherein forming the mask pattern comprises forming the mask pattern in the second conductive layer.

- [c8] The method of claim 7, further comprising after repairing the defect extending the mask pattern into the first conductive layer and into the buffer layer in a substantially defect-free process that exposes a portion of the multilayer stack, wherein said extending the mask pattern into the buffer layer is by an etch method that is not selective with respect to the absorber material.
- [c9] An extreme ultraviolet lithography (EUVL) mask structure, comprising:
a multilayer stack adapted to substantially reflect EUV radiation incident thereon; and
a first conductive layer between a buffer layer and an absorber layer such that the buffer layer is on the multilayer stack, wherein the absorber layer includes a mask pattern such that a portion of the first conductive layer is exposed, and wherein the absorber layer is adapted to absorb essentially all of EUV radiation incident thereon.
- [c10] The EUVL mask structure of claim 9, wherein the absorber layer comprises a defect, and wherein the first conductive layer is adapted to prevent the buffer layer from accumulating electric charge when the defect is subsequently repaired by a beam of charged particles directed into the absorber layer and toward the buffer layer.
- [c11] The EUVL mask structure of claim 9, wherein the first conductive layer has a thickness between about 5 Å and about 1000 Å.
- [c12] The EUVL mask structure of claim 9, wherein the first conductive layer has a thickness between about 50 Å and about 100 Å.
- [c13] The EUVL mask structure of claim 9, further comprising a second conductive layer on the absorber layer, wherein the second conductive layer includes the mask pattern such that the portion of the first conductive layer is exposed.
- [c14] The EUVL mask structure of claim 13, wherein the second conductive layer has a thickness between about 50 Å and about 100 Å.
- [c15] An extreme ultraviolet (EUV) mask, comprising:
a multilayer stack adapted to substantially reflect EUV radiation incident

thereon; and

a first conductive layer between a buffer layer and an absorber layer such that the buffer layer is on the multilayer stack, wherein a mask pattern in each of the absorber layer, first conductive layer, and buffer layer collectively exposes a portion of the multilayer stack, wherein the absorber layer is adapted to absorb essentially all of EUV radiation incident thereon, and wherein the absorber layer, first conductive layer, and buffer layer are essentially defect free.

- [c16] The EUVL mask of claim 15, wherein the absorber layer and the first conductive layer have a combined thickness not exceeding about 1000 Å.
- [c17] The EUVL mask structure of claim 15, wherein the first conductive layer has a thickness between about 50 Å and about 100 Å.
- [c18] The EUVL mask of claim 15, further comprising a second conductive layer on the absorber layer, wherein the second conductive layer includes the mask pattern, and wherein the mask pattern in the second conductive layer, absorber layer, first conductive layer, and buffer layer collectively exposes the portion of the multilayer stack.
- [c19] The EUVL mask of claim 18, wherein the second conductive layer has a thickness between about 50 Å and about 100 Å.
- [c20] The EUVL mask of claim 18, wherein the first conductive layer and the second conductive layer include a same conductive material.